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ABSTRACT

This study reveals that children from the age of four to six years are unable to segment meaningful sentences into component words. The experiment investigated three hypotheses of performance on a word-learning task for beginning readers and prereaders. Readers and prereaders were taught five words as oral responses, each word paired with a nonsense figure. Analyses confirmed that context-dependent words (past tense verbs, prepositions, functors), took longer to learn than did context-free words (nouns, adjectives). However, providing a sentence context did not make it easier to learn either word class. Unlike readers, prereaders had substantial difficulty learning the words, particularly context-dependent words, because prereaders failed to recognize these words as units in their language. Results concerning the effectiveness of teaching beginning readers sight vocabulary words are discussed. (Author/MB)

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SUMMARY

Word Learning in Beginning Readers and Prereaders

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Objectives and Theory

Although the young child is skilled at combining and recombining words to produce meaningful speech, he is quite unaware that speech is constructed out of word units. Studies by Huttenlocher (1964), Karpova (1955), Holden & MacGinitie (1972), and Ehri (1975) reveal that 4-6 year olds are unable to segment meaningful sentences into component words, and they are particularly likely to ignore function words. In accounting for youngsters' lack of word consciousness, several contributing factors can be identified. First, young children experience most words in the context of other words, and their attention is centered upon the meanings conveyed by these spoken combinations, not upon their linguistic structure. Hence, words as component units of speech are ignored. Second, many words such as auxiliaries, past tense verbs, prepositions, and conjunctions, depend for their meaning upon the presence of other words. If heard as isolated sounds without contexts, these words may not be recognized because they evoke no independent meaning. Third, the prereader has had little experience with concrete word forms. It may be that in order to achieve awareness of words as units, children need to become familiar with language which endures, that is, speech represented as clusters of printed letters separated by empty spaces.

The present experiments were intended to assess the influence of these factors on performance in a word learning task given to beginning readers and prereaders. The first hypothesis tested was that single words accompanied by information about their role in language would produce faster learning than words presented without defining sentence contexts. It was reasoned that syntactic-semantic information accompanying oral responses would enable children to recognize the sounds as familiar units of language and so would eliminate the response learning phase of the task. In contrast, children given words but no contexts would not recognize many of the sounds and so would have to memorize them as well as learn their associations to stimuli.

The second hypothesis examined was that the form class of the words would influence the ease of word learning as well as the extent to which defining contexts might improve word learning. Specifically, words such as past tense verbs, prepositions and conjunctions, which have little meaning outside of a sentence context (labeled context-dependent words), would be more difficult for young children to recognize and learn than words which convey substantial meaning in isolation (i.e., nouns and adjectives, referred to as context-free words). However, the difference in difficulty distinguishing dependent and free forms would diminish if not disappear when defining contexts accompanied the words.

The third hypothesis tested was that children who can read would outperform prereaders in learning words, especially context-dependent words presented without defining contexts. It was reasoned that, unlike prereaders, beginning readers have experienced the printed forms of these words and so are aware of their status as separate linguistic units. In addition, in their reading they have practiced associating syntactic and semantic identities with isolated word sounds in the process of decoding printed words and identifying their meanings. Hence, given isolated spoken words, readers should find it quite easy to locate them in their lexicons and learn them as responses. Ehri (1975) provides evidence that readers surpass prereaders in lexical awareness. However, age was confounded with reading ability in Ehri's study. The present study was intended to confirm that reading ability rather than age is the critical factor.

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Method

test these hypotheses and to

Three experiments were conducted to/verify effects. Subjects for the first study were kindergarten readers and prereaders matched in age and sex and first grade readers (n = 64). Only prereaders were selected for the latter studies (n = 48).

Subjects were given a paired associate task and were asked to learn one of three five-word lists, each list having a single-syllable, high frequency, unambiguous noun, adjective, past tense verb, preposition, and function word. All words but the nouns were taken from the Dolch list of basic sight vocabulary words. The word sets were: (a) and, milk, of, came, small; (b) fast, at, helped, could, box; (c) ran, hot, were, fish, on. Five squizzles (meaningless line drawings) were created to serve as stimuli for the words. For each word, a sentence context was written, one illustrating the linguistic function of the word in the child's language but having little additional semantic content (i.e., "That box is hers." "Mine is as fast as yours." "He helped her get it." "He's at my place, over there." "He could do it if he wanted."). In the second and third experiments, these sentences were replaced by semantically richer contexts (i.e., "That box belongs to Sally." "My car goes as fast as yours." "The teacher helped the girl draw the picture." "Your dog is at my house, over there." "The boy could read the book if he wanted."). Spelling and printed word recognition tasks were administered to assess subjects' reading ability.

Each child was tested individually. After warming up with an example, each of the five squiggles was presented, the experimenter pronounced its name (the target word) and had subject repeat it. Half of the subjects heard the word spoken again (no context condition) and half listened to the word pronounced with stress in a sentence context (context provided condition). On subsequent trials, if subject failed to produce the correct response, the above procedure was repeated. Learning was continued to a criterion of two errorless trials in a row or until 30 minutes elapsed.

Results

Analyses of variance were used to assess effects of the independent variables. To measure the ease of learning each word in the paired associate task, the number of trials preceding two perfect performances and no subsequent errors or the number of trials preceding termination of the task was counted. In Experiment 1, two separate analyses were performed, one on the responses of readers (kindergarteners vs. primer-level 1st graders vs. grade-level 1st graders), and one on the responses of kindergarteners (readers vs. prereaders).

In none of the analyses did provision of sentence contexts influence performance ($p > .05$). However, form class effects were significant ($p < .01$). Mean values from Experiment 1 were as follows:

Mean Number of Trials to Criterion or
Termination of Learning Task for Each Word

	Form Class of Word					
	Noun	Adj.	Verb	Prep.	Funct.	Mean
Prereaders	1.5	3.9	9.3	10.2	10.4	7.1
Readers	0.6	0.8	2.8	2.5	3.0	1.9

Post hoc analyses using Tukey's method to compare pairs of means revealed that nouns were learned as fast as adjectives, and both were learned significantly faster than verbs, prepositions and functors among which there were no differences. This pattern was duplicated in all analyses thus confirming the prediction that context-free words are easier to learn than context-dependent words.

In Experiment 1, the reading ability of subjects proved to be a significant factor in the kindergartener analysis ($p < .01$), with readers outperforming prereaders.

Inspection of the errors of prereaders indicated that they were having trouble learning the words as responses. Less than 20% of the errors were stimulus-response mismatches while the remainder entailed either no response, extra-list intrusions, or intrusions from the sentence contexts. Most of the errors occurred with context-dependent words which proved impossible for many of the prereaders to learn at all.

Conclusions and Implications

Findings of the present study yielded support for some but not all of the hypotheses tested. Readers familiar with the printed forms of words were able to learn them faster than prereaders. Nouns and adjectives which convey substantial meaning by themselves were easier to learn than words which depend upon the presence of other words to be meaningful, that is, past tense verbs, prepositions, and functors. However, contrary to expectations, provision of defining sentence contexts for the words being learned did not facilitate learning, regardless of whether the contexts were semantically rich or impoverished, regardless of the form class of the words, and regardless of whether the learners were readers or prereaders.

There are alternative explanations available for the superiority of readers over prereaders. One possibility is that lexical awareness results from the growth of basic cognitive capacities such as decentration or metalinguistic skills or the extension of working memory space. Alternatively, it may be that lexical awareness develops as a consequence of learning to read. Word consciousness may grow out of the beginning reader's experiences with printed language and his attempts to match up print and speech. Because words are the units of print, he begins noticing and isolating words in speech, he perceives their component sounds, and he tries to coordinate these sounds with the printed letters. Also, he becomes aware of the syntactic and semantic functions of words in sentences and he connects these with the words' orthographic and phonological identities. As a result, he becomes much better able to recognize the linguistic status of single words, particularly context-dependent words. This latter explanation is the one I favor. However, since results of the present study are correlational, further research is needed to settle the matter.

Findings of this study can be interpreted as bearing on reading instruction in two respects. First, results carry implications for the flash card technique of teaching basic sight vocabulary words. All but the nouns were taken from the Dolch list, the most commonly used word set taught with flash cards. Results demonstrate that such context-dependent words are very difficult to learn as isolated units, especially by children who have little experience with printed language. Furthermore, results indicate that simply providing defining sentence contexts for these words does not help.

The second way that results bear on reading instruction concerns the nature of the relationship between linguistic awareness and learning to read. Given the finding that lexical awareness distinguishes readers from prereaders, some may want to conclude that this constitutes a prerequisite for success and that children should be taught lexical analytic skills before they are taught to read (Bereiter & Englemann, 1966; Gleitman & Rozin, 1973; Ryan, 1977). Others, myself included, prefer the position that word segmentation is an inevitable product of the learner's attempts to achieve competence with printed language and that no special instruction delivered prior to encountering print is required to accomplish this. Before time, effort and money are spent developing materials and strategies to diagnose and treat lack of lexical awareness, the necessity of such special treatment must be demonstrated.

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